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CLAIMS

1. Use of xenon in the preparation of a medicament for the treatment of neonatal asphyxia in a neonatal subject, wherein said medicament is for use in combination with hypothermia.
2. Use according to claim 1 wherein the xenon is admixed with a pharmaceutically acceptable diluent, excipient or carrier.
3. Use according to claim 1 or claim 2 wherein the medicament is in gaseous form.
4. Use according to claim 3 wherein the medicament is administered by inhalation.
5. Use according to any preceding claim wherein the xenon is administered in the form of a 20 to 70 % v/v xenon/air mixture.
6. Use according to claim 1 or claim 2 wherein the xenon is administered by perfusion.
7. Use according to claim 1 or claim 2 wherein the medicament is in the form of a liquid or solution.
8. Use according to claim 7 wherein the medicament is in the form of a lipid emulsion.
9. Use according to claim 7 or claim 8 wherein the medicament is in a form suitable for intravenous, neuraxial or transdermal delivery.
10. Use according to any preceding claim wherein the xenon is administered simultaneously, sequentially or separately with hypothermia.

11. Use according to claim 10 wherein the xenon is administered simultaneously with hypothermia.
12. Use according to any preceding claim wherein the xenon is administered to the mother of the neonatal subject prior to birth.
13. Use according to claim 12 wherein the xenon is administered to the mother of the neonatal subject prior to, or during, labour.
14. Use according to claim 13 wherein the xenon is administered to the mother of the neonatal subject for up to about 24 hours prior to birth.
15. Use according to any preceding claim wherein the hypothermia is maintained for a period of at least about 6 hours after the hypoxic-ischemic (HI) insult.
16. Use according to any preceding claim wherein the hypothermia is maintained for a period of from about 6 to about 24 hours after the hypoxic-ischemic (HI) insult.
17. Use according to any preceding claim wherein the xenon is administered in a therapeutically effective amount.
18. Use according to any one of claims 1 to 16 wherein the xenon is administered in a sub-therapeutically effective amount.
19. Use according to any preceding claim wherein the xenon is administered in combination with an anesthetic selected from isoflurane, sevoflurane and desflurane.
20. A method of treating neonatal asphyxia in a mammal in need thereof, said method comprising:
  - (a) administering a therapeutically effective amount of xenon to the mammal; and
  - (b) subjecting the mammal to hypothermia.

21. A method according to claim 20 wherein the mammal is a human.
22. A method according to claim 20 or claim 21 wherein the xenon is administered in combination with a pharmaceutically acceptable carrier, diluent or excipient.
23. A method according to any one of claims 20 to 22 wherein the xenon is administered by inhalation.
24. A method according to claim 23 wherein the xenon is administered in the form of a 20 to 70 % v/v xenon/air mixture.
25. A method according to any one of claims 20 to 22 wherein the xenon is administered by perfusion.
26. A method according to any one of claims 20 to 22 wherein the xenon is administered in the form of a solution or emulsion.
27. A method according to claim 26 wherein the xenon is administered in the form of a lipid emulsion.
28. A method according to any one of claims 26 or 27 wherein the xenon is administered intravenously, neuraxially or transdermally.
29. A method according to any one of claims 20 to 28 wherein the xenon is administered simultaneously, sequentially or separately with hypothermia.
30. A method according to claim 29 wherein the xenon is administered simultaneously with hypothermia.
31. A method according to any one of claims 20 to 30 wherein the temperature of the mammal is maintained at a temperature of from about 32 °C to about 36 °C.

32. A method according to claim 31 wherein the temperature of the mammal is maintained at a temperature of from about 33 °C to about 35 °C.
33. A method according to any one of claims 20 to 32 wherein the hypothermia is maintained for a period of at least 6 hours after the hypoxic-ischemic (HI) insult.
34. A method according to any one of claims 20 to 33 wherein the hypothermia is maintained for a period of from about 6 to about 24 hours after the hypoxic-ischemic (HI) insult.
35. A method according to any one of claims 20 to 34 wherein the xenon is administered to the mother of the mammal prior to birth.
36. A method according to claim 35 wherein the xenon is administered to the mother of the mammal prior to, or during, labour.
37. A method according to claim 35 or 36 wherein the xenon is administered to the mother of the mammal for up to about 24 hours prior to birth.
38. A method according to any one of claims 20 to 37 wherein the xenon is administered in a therapeutically effective amount.
39. A method according to any one of claims 20 to 37 wherein the xenon is administered in a sub-therapeutically effective amount.
40. A method according to any one of claims 20 to 38 wherein the xenon is administered in combination with an anesthetic selected from isoflurane, sevoflurane and desflurane.

41. A method of treating neonatal asphyxia in a mammal in need thereof, said method comprising administering a therapeutically effective amount of xenon to the mammal in combination with hypothermia.
42. Use of xenon in the preparation of a medicament for the treatment of neonatal asphyxia, wherein said treatment comprises administering to a subject simultaneously, sequentially or separately xenon in combination with hypothermia.
43. Use of xenon, in combination with hypothermia, for the treatment of neonatal asphyxia.
44. Another aspect of the invention relates to a method of treating neonatal asphyxia in a mammal in need thereof, said method comprising:
- (a) administering a therapeutically effective amount of xenon to the mother of the mammal prior to and/or during labour; and
  - (b) subjecting the mammal to hypothermia after birth.
45. A method or use substantially as described herein and with reference to the accompanying figures.